Drinking Water Electronic EDT Newsletter

Volume 3, Issue 3 March 2001

Write-On Maintenance Upgrades

Several changes have been made to chemicals. They are described below and are all reflected in the latest release of the Write-On software available at the Department's web site at:

http://www.dhs.ca.gov/ps/ddwem

Laboratories using LIMS should make the following changes to their systems:

1. The STORET number for MTBE has been changed from A-030 to 46491.

2. Total organic carbon (TOC) has been added to the mineral, physical, & inorganic chemicals form. Its STORET number is 00680 and its DLR is 0.7 mg/L.

3. Tert-butylalcohol has been added to the organic chemicals form. Its STORET number is 77035 and its preliminary DLR is 2 ug/L.

4. A total chromium analysis for screening Cr VI has been added to the mineral, physical, & inorganic chemicals form. Its STORET number is A-044, and its DLR is 1 ug/L. It is described below:

SCREENING FOR HEXAVALENT CHROMIUM USING TOTAL CHROMIUM ANALYSIS

The Department's present DLR for Cr(VI) is 1 ug/l This value was originally derived from a single-laboratory MDL of 0.2 ug/l using a multiplier of five. In order to be consistent with the DLR for Cr(VI) of 1 ug/l. any analytical technique for measuring total chromium which is to serve as a screening tool for Cr(VI) must be capable of achieving a total chromium reporting limit of 1 ug/l or better. The advantages of a total chromium screening approach are that

(1) total chromium determinations are less costly, and
(2) total chromium determinations are not subject to the short holding time constraints of the Cr(VI) method.

Among the atomic spectrometry techniques generally used for total chromium deter-min-ations, i.e., Flame-AAS, GFAAS, ICP-AES, and ICP-MS, only GFAAS and ICP-MS appear to have the potential to achieve the required RL. This is based on the results of the recent multi-analyte and multi-laboratory study performed by the Reporting Level Work Group (RLWG).

Utilities and their laboratories may use ICP-MS or GFAAS for initial screening for total chromium in lieu of performing the more time-consuming hexavalent chromium method (EPA 218.6). In order to use these screening tools, laboratories must demonstrate that they can analyze water samples at the 1ug/l level with a precision (RSD) of 20% and an accuracy, as measured by percent recovery, in the range 80-120%. A method detection limit (MDL) must be established following EPA protocol (40CFR136 Appendix B). The reporting limit should be no less than three times the MDL. EPA approved methods for the analytical technology selected must be followed and all of the QC criteria specified in those methods must be met. Laboratories should maintain their QC criteria for review should any questions arise regarding the results and their adequacy for screening.

NOTE: Labs using ICP-MS should digest the samples to avoid any positive interference by carbon that can occur in the analysis of Total Chromium.